

## F. APPLICATION OF TEST RESULTS TO PROJECT

30. Probable distribution of underseepage along conservation area boundaries.--An examination of the underseepage quantities given in table D-18 and the geologic sections across the pumping-test sites demonstrates that there is good correlation between aquifer lithology and thickness and underseepage quantity. High quantities of underseepage were found at locations where the foundation was hard, solution-riddled limestone. That area includes all of levee 30, the southern half of levee 33, and the eastern half of levee 29. The northward change from the highly pervious limestone to more dense rock containing relatively thick beds of sand and marl is abrupt and occurs near the midpoint of levee 33. There is no apparent transition zone from the very pervious to the less pervious type of foundation. Foundations containing hard rock interbedded with sand and marl are considered to have transmissibilities represented by tests Nos. 5 and 11 extend northward and eastward from the midpoint of levee 33 along the entire length of levees 37 and 35 and to about the midpoint of levee 35A. Along levee 38 there is no distinct change in lithology although the results of tests Nos. 9 and 10 show that there is considerable decrease in permeability northward. From other geological studies made in that area, it is believed that test No. 5 is representative of the southern miles of levee 38 and that the foundation along the remainder of the alignment is relatively impervious. Foundations which have low permeabilities (less than 5 c.f.s./mile/ft. head) are found along all levees bounding conservation area No. 1, along levees 4, 5, 6, 36, 28, 29 (western half), and the northern portion of levee 38. Estimates of underseepage quantities along all boundary levees, based on pumping tests and studies of cores from foundations, are shown graphically on plate 1.

31. Possibility of modifying boundaries of conservation area No. 3.--From plate 1, it can be seen that the major portion of the seepage losses from conservation area No. 3 would occur along the southeastern and southern boundaries. To investigate the possibility of shifting the boundary levees to reduce those losses, two rows of core borings were put down across the conservation area. Geologic sections along the lines investigated are shown on plates 82 through 85. Results of those borings are combined with information obtained along the alignments of levees 23, 29, 30, 33, 35, 35A, 37, and 38, and an isopach map of the very pervious portion of the aquifer was prepared (plate 2). The thickness of all the aquifer above the base of the most very pervious member is shown on the map although in the north and northeast portions of the area the effective thickness is actually less than that indicated because of the presence of sand, marl, and dense rock interbedded with the more pervious limestone. The very pervious portion of the aquifer thins rapidly